AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A fluid heating apparatus comprising a housing having a main chamber;

a central member within said main chamber and movable relative to said housing about an axis of rotation;

said central member comprising an outer surface confronting an inner surface of said main chamber and defining an annular fluid volume therebetween;

a fluid inlet communicating with said annular fluid volume and situated nearer one end of said main chamber and a fluid outlet communicating with said annular fluid volume and situated nearer an opposite end of said main chamber, said fluid inlet and said fluid outlet each opening exteriorly of said housing, wherein at least one of said inner and outer surfaces is angularly inclined relative to said axis of rotation, further comprising a plurality of openings circumferentially spaced about said outer surface over a majority of length of said central member for confronting fluid entering said chamber, and wherein rotation of said central member causes said plurality of openings to impart heat-generating cavitation to a fluid entering said chamber.

2. (currently amended) [A] The fluid heating apparatus according to claim 1 wherein said central member is a rotor driven in rotation about said axis of rotation, and said inner surface being stationary.

3. (currently amended) [A] The fluid heating apparatus according to claim 2 further comprising a drive shaft rotatably supported in said housing and having a longitudinal axis of rotation; said rotor being driven by said drive shaft and where at least one of said inner and outer surfaces can be axially displaced relative to the position of said drive shaft to ~~change~~ alter the rate of fluid passing through said annular fluid volume.

4. (original) The fluid heating apparatus according to claim 3 wherein said one of said first and second cylindrical surfaces is rotating at equal speed to said drive shaft.

5. (original) The fluid heating apparatus according to claim 2 wherein both said inner and outer surfaces are inclined relative to said axis of rotation.

6. (original) The fluid heating apparatus according to claim 2 wherein both said inner and outer surfaces are inclined relative to said axis of rotation by the same amount.

7. (original) The fluid heating apparatus according to claim 2 wherein said inner and outer surfaces are inclined relative to said axis of rotation by a different amount.

8. (currently amended) [A] The fluid heating apparatus according to claim 1, further comprising an externally controlled device for selectively positioning said central member in said main chamber wherein said inner and outer surfaces are retractable from one another in an axial direction to increase said annular fluid volume.

9. (currently amended) [A] The fluid heating apparatus according to claim 1, further comprising an externally controlled device for selectively positioning said central member in said main chamber wherein said inner and outer surfaces are movable towards one another in an axial direction ~~for an~~ to decrease said annular fluid volume.

10. (currently amended) The fluid heating apparatus according to claim 1 ~~wherein fluid entering said annular fluid~~

~~volume is subjected to increased turbulence and shearing when said inner and outer surfaces move closer towards one another and decreased turbulence and shearing when said inner and outer surfaces move further from one another~~, further comprising an externally controlled device for selectively positioning said central member in said main chamber.

11. (currently amended) A fluid heating apparatus comprising a housing having

a main chamber and a fluid inlet and a fluid outlet in fluid communication with said main chamber, said fluid inlet and said fluid outlet each opening exteriorly of said housing;

a rotor assembly disposed centrally in said main chamber, said fluid inlet being nearer a distal end of said rotor assembly and said fluid outlet being nearer the proximate end of said rotor assembly;

a drive shaft having a longitudinal axis of rotation rotatably supported in said housing and drivingly connected to said rotor assembly for imparting mechanical energy to said rotor assembly;

and first and second opposing fluid boundary defining surfaces radially spaced apart from one another along at least a majority of length of said rotor assembly to form a fluid heat generating region and wherein at least one of said fluid boundary

defining surfaces is angularly inclined with respect to said longitudinal axis, further comprising a plurality of openings disposed over whichever one of said first and second opposing fluid boundary defining surfaces is provided by said rotor assembly.

12. (currently amended) [A] The fluid heating apparatus according to claim 11 wherein one of said fluid boundary defining surfaces can be axially displaced relative to the position of said drive shaft to change the volume of said fluid heat generating region and increase or decrease the through-put of fluid.

13. (currently amended) [A] The fluid heating apparatus according to claim 11 wherein said first and second opposing fluid boundary defining surfaces are retractable from one another in an axial direction for an increase in the radial distance there inbetween.

14. (currently amended) [A] The fluid heating apparatus according to claim 11 wherein said first and second opposing fluid boundary defining surfaces are arranged to move towards one another in an axial direction for a decrease in the radial distance there inbetween.

15. (currently amended) [A] The fluid heating apparatus according to claim 11 wherein said rotor assembly can be axially displaced relative to the position of said drive shaft to change the volume of said fluid heat generating region and increase or decrease the through-put of fluid.

16. (original) The fluid heating apparatus according to claim 11 ~~wherein the fluid entering said fluid heating region is subjected to increased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move closer towards one another and decreased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move further from one another~~, further comprising an externally controlled device for selectively positioning said rotor assembly in said main chamber.

17. (currently amended) [A] The fluid heating apparatus according to claim 11 wherein said rotor assembly is axially displacable relative to said drive shaft such that on the one hand said first and second opposing fluid boundary defining surfaces may be moved closer towards one another, whereas on the other hand said first and second opposing fluid boundary defining surfaces may be moved further part from one another.

18. (currently amended) The fluid heating apparatus according to claim 17 ~~wherein the fluid entering said fluid heating region is subjected to increased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move closer towards one another and decreased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move further from one another~~, further comprising an externally controlled device for selectively positioning said rotor assembly in said main chamber.

19. (original) The fluid heating apparatus according to claim 16 wherein at least one of said boundary defining surfaces is rotating at equal speed to said drive shaft.

20. (original) The fluid heating apparatus according to claim 16 wherein at least one of said boundary defining surfaces is being rotated by said drive shaft.

21. (original) The fluid heating apparatus according to claim 20 wherein both said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis.

22. (original) The fluid heating apparatus according to claim 21 wherein both said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis by the same amount.

23. (original) The fluid heating apparatus according to claim 21 wherein said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis by a different amount.

24. (original) The fluid heating apparatus according to claim 16 wherein said rotor assembly includes an impeller disposed at the smaller of its two end faces, said impeller rotating at equal speed to said drive shaft to propel fluid radially towards said fluid heating region.

25. (currently amended) A fluid heating apparatus comprising a housing;

a main chamber in said housing and a rotor assembly disposed in said main chamber, said rotor assembly and said main chamber defining an inlet region, an exhaust region and a fluid heat generating region;

a drive shaft having a longitudinal axis of rotation rotatably supported in said housing and drivingly connected to

said rotor assembly for imparting mechanical energy to said rotor assembly;

a fluid inlet provided in said housing and in fluid communication with said inlet region;

a fluid outlet provided in said housing and in fluid communication with said exhaust region;

said fluid inlet and said fluid outlet each opening exteriorly of said housing, said apparatus further comprising first and second opposing fluid boundary defining surfaces radially spaced apart from one another along at least a majority of length of said rotor assembly to form said fluid heat generating region and a unidirectional pathway for fluid upon entering said inlet region to reach said exhaust region, wherein at least one of said fluid boundary defining surfaces is angularly inclined with respect to said longitudinal axis, further comprising a plurality of openings disposed over whichever one of said first and second opposing fluid boundary defining surfaces is provided by said rotor assembly.

26. (currently amended) [A] The fluid heating apparatus according to claim 25 wherein one of said fluid boundary defining surfaces can be axially displaced relative to the position of said drive shaft to change the volume of said fluid heat generating region and increase or decrease the through-put of fluid.

27. (currently amended) [A] The fluid heating apparatus according to claim 25 wherein said first and second opposing fluid boundary defining surfaces are retractable from one another in an axial direction for an increase in the radial distance there inbetween.

28. (currently amended) [A] The fluid heating apparatus according to claim 25 wherein said first and second opposing fluid boundary defining surfaces are moveable towards one another in an axial direction for a decrease in the radial distance there inbetween.

29. (currently amended) [A] The fluid heating apparatus according to claim 25 wherein said rotor assembly can be axially displaced relative to the position of said drive shaft to change the volume of said fluid heat generating region and increase or decrease the through-put of fluid.

30. (currently amended) The fluid heating apparatus according to claim 25 ~~wherein the fluid entering said fluid heating region is subjected to increased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move closer towards one another and decreased turbulence~~

~~and shearing when said first and second opposing fluid boundary defining surfaces move further apart from one another~~, further comprising an externally controlled device for selectively positioning said central member in said main chamber.

31. (currently amended) A fluid heating apparatus according to claim 25 wherein said rotor assembly is axially ~~displacable~~ displaceable relative to said drive shaft such that on the one hand said first and second opposing fluid boundary defining surfaces may be moved closer towards one another, whereas on the other hand said first and second opposing fluid boundary defining surfaces may be moved further part from one another.

32. (currently amended) The fluid heating apparatus according to claim 31 ~~wherein the fluid entering said fluid heating region is subjected to increased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move closer towards one another and decreased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move further apart from one another~~, further comprising an externally controlled device for selectively positioning said central member in said main chamber.

33. (original) The fluid heating apparatus according to claim 30 wherein at least one of said boundary defining surfaces is rotating at equal speed to said drive shaft.

34. (original) The fluid heating apparatus according to claim 30 wherein at least one of said boundary defining surfaces is being rotated by said drive shaft.

35. (original) The fluid heating apparatus according to claim 34 wherein both said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis.

36. (original) The fluid heating apparatus according to claim 35 wherein both said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis by the same amount.

37. (original) The fluid heating apparatus according to claim 35 wherein said first and second opposing fluid boundary defining surfaces are inclined relative to said longitudinal axis by a different amount.

38. (original) The fluid heating apparatus according to claim 30 wherein said housing includes a port and where said inlet is connected by said port to said fluid entry region.

39. (original) The fluid heating apparatus according to claim 38 wherein said housing includes a fluid capturing groove, said capturing groove circumferentially surrounding said fluid heating region and positioned nearer that distal end of said rotor assembly lying furtherest from said inlet region, said exhaust region connected by said fluid capturing groove to said fluid exit.

40. (original) The fluid heating apparatus according to claim 30 wherein said inlet region increases in volume as said rotor assembly is axially displaced in the direction for causing said first and second opposing fluid boundary defining surfaces to move further part from one another.

41. (original) The fluid heating apparatus according to claim 40 wherein said rotor assembly includes an impeller disposed at the smaller of its two end faces, said impeller rotating at equal speed to said drive shaft in said inlet region to propel fluid radially towards said fluid heating region.

42. (currently amended) The fluid heating apparatus according to claim 41 wherein ~~the fluid entering said fluid heating region is subjected to increased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move closer towards one another and decreased turbulence and shearing when said first and second opposing fluid boundary defining surfaces move further from one another~~ said plurality of openings are disposed in at least two circumferential rows, each respective opening having a entrance and where the entrances to those said openings disposed in one of said at least two circumferential rows lies radially closer to said rotational axis than the entrances to those said openings disposed in any other of said at least two circumferential rows.

43. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings have their respective longitudinal axes disposed perpendicular to said outer surface.

44. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings have their respective longitudinal axes disposed perpendicular to said inner surface.

45. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings have their respective longitudinal axes inclined in a direction towards said central member rotation.

46. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings have their respective longitudinal axes inclined in a direction opposite said central member rotation.

47. (new) The fluid heating apparatus according to claim 1, further comprising an interior chamber in said central member, wherein certain of said plurality of openings are arranged to fluidly connect with said interior chamber.

48. (new) The fluid heating apparatus according to claim 47, further comprising at least one channel in said central member, said at least one channel connecting said interior chamber to one respective end face of said central member.

49. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings are blind openings having bottoms formed within said central member.

50. (new) The fluid heating apparatus according to claim 49 wherein said bottoms of said blind openings become disposed closer to said axis of rotation increasingly in the direction from said fluid inlet towards said fluid outlet.

51. (new) The fluid heating apparatus according to claim 49 wherein said bottoms of said blind openings become disposed closer to said axis of rotation increasingly in the direction from said fluid outlet towards said fluid inlet.

52. (new) The fluid heating apparatus according to claim 1 wherein a substantial number of said plurality of openings are blind openings having bottoms formed within said central member with an depth increasing in the direction from said fluid inlet to said fluid outlet or vice versa.

53. (new) The fluid heating apparatus according to claim 1 wherein a substantial number of said plurality of openings are blind openings passing through less than half the diametric dimension of said central member.

54. (new) The fluid heating apparatus according to claim 1 wherein a substantial number of said plurality of openings are blind openings having bottoms formed within said central member at a depth less than the radial dimension of said central member.

55. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings comprises blind openings passing through less than half the diametric dimension of said central member.

56. (new) The fluid heating apparatus according to claim 1 wherein said plurality of openings comprises blind openings passing through less than half the radial dimension of said central member and having bottoms formed within said central member.

57. (new) The fluid heating apparatus according to claim 11 wherein said openings projecting in a generally radial direction towards said axis of rotation, said openings positioned nearer the said distal end of said rotor assembly having a greater depth than those said openings positioned nearer the proximate end of said rotor assembly.

58. (new) The fluid heating apparatus according to claim 11 wherein

said openings projecting in a generally radial direction towards said axis of rotation, said openings positioned nearer the said distal end of said rotor assembly having a lesser depth than those said openings positioned nearer the proximate end of said rotor assembly.

59. (new) A fluid heating apparatus comprising:

a housing having a main chamber;

a rotor within said main chamber and movable relative to said housing about an axis of rotation,

said rotor having an outer surface confronting an inner surface of said main chamber and defining an annular fluid volume therebetween; and

a fluid inlet communicating with said annular fluid volume and situated nearer one end of said main chamber and a fluid outlet communicating with said annular fluid volume and situated nearer an opposite end of said main chamber,

wherein at least one of said inner and outer surfaces is angularly inclined relative to said axis of rotation, further comprising a plurality of openings circumferentially spaced about said outer surface in at least two rows of openings over a majority of length of said rotor for confronting fluid entering

said chamber, and

wherein the total volumetric capacity carried by one row of said at least two rows of openings disposed nearer the larger diameter end of said rotor differs from the total volumetric capacity carried by the other row of said at least two rows of openings disposed nearer the smaller end of said rotor.

60. (new) The fluid heating apparatus according to claim 59 wherein the total volumetric capacity carried by one row of said at least two rows of openings disposed nearer the larger diameter end of said rotor is greater than the total volumetric capacity carried by the other row of said at least two rows of openings disposed nearer the smaller end of said rotor.

61. (new) The fluid heating apparatus according to claim 59 wherein the total volumetric capacity carried by one row of said at least two rows of openings disposed nearer the larger diameter end of said rotor is less than the total volumetric capacity carried by the other row of said at least two rows of openings disposed nearer the smaller end of said rotor.

62. (new) The fluid heating apparatus according to claim 59 wherein the apparent depth of said one row of said at least two rows of openings occupies a lesser radial distance

towards said axis of rotation than the apparent depth of said other row of said at least two rows of openings.

63. (new) The fluid heating apparatus according to claim 59 wherein the apparent depth of said one row of said at least two rows of openings occupies a greater radial distance towards said axis of rotation than the apparent depth of said other row of said at least two rows of openings.

64. (new) The fluid heating apparatus according to claim 59 wherein the rotation of said central member causes said plurality of openings to impart heat-generating cavitation to a fluid entering said chamber.

65. (new) The fluid heating apparatus according to claim 59, further comprising an externally controlled device for selectively positioning said rotor in said main chamber.